

## EDITORIAL

### 1. INTRODUCTION

Macroeconomics is at a crossroads. The call of real science is drawing it forward to a degree that is without precedent in the history of the field. But the field's origins are related to the exceptional policy relevance of macroeconomics, and the field continues to be pressed for answers to difficult policy problems that sometimes are beyond the current capabilities of the field. Continuing tensions exist between policy demands and the constraints of systematic, rigorous scientific development. A commonly mentioned example is the increasing size of structural macroeconomic models. While highly regarded in many governments, those massive models are greeted with skepticism by the best economics journals.

Nevertheless, many journals emphasize the policy relevance of macroeconomics to such a degree as to welcome questionable compromises in methodology, when needed to address a pressing policy problem. *Macroeconomic Dynamics*, on the other hand, will operate in the interests of science in macroeconomics. Papers published in *Macroeconomic Dynamics* will be at the state of the art—not below it—and not beyond it.

### 2. SKEPTICAL REFLECTIONS ON THE FIELD

The current state of the field of macroeconomics is paradoxical. On the one hand, the methodology used by macroeconomics is becoming increasingly sophisticated and scientific, yet the field still lacks some of the characteristics associated with a mature science. The scientific method is intended to produce agreement on hypotheses that survive scientific tests and replications of those tests. While the state of the art in any science is always a contest among competing hypotheses, there normally is a noncontroversial and growing backlog of accepted hypotheses, shared by nearly all researchers in the field. Such is indeed the case in microeconomics. But whether that backlog in macroeconomics has grown over the years is debatable. In fact some observers from outside the profession recently have argued that there is less agreement today on macroeconomic methodology and implied macroeconomic policy than during the 1950's heyday of the "neoclassical-Keynesian-synthesis."

The "arts" and other overtly nonscientific fields of academic interest tend to be characterized by emphasis on intellectual fashion and the reflection of contemporary culture. "Schools of thought" arise and evolve as society evolves. Here again we see disturbing similarities with some aspects of the macroeconomics literature.

### 3. THE POSITIVE SIDE

The nature of macroeconomic theory has changed dramatically during the past decade, and my comments above may appear to have a negative tone to them. Some detractors have argued that macroeconomic theorists are less willing to make policy recommendations with confidence than at any other time in this century, and some people even argue that macroeconomic theory is in crisis. I disagree.

In fact the dramatic transformation of macroeconomics during the past decade has reflected the adoption of more scientific methodology than had previously characterized the field. A corollary is that conclusions are drawn more cautiously than earlier, as a natural result of the conservative nature of the scientific method itself. Hence the caution characterizing macroeconomic policy conclusions should be viewed as positive evidence of the advancement of science in macroeconomics.

Prior to the recent transformation of macroeconomics, economists with strong mathematical and statistical leanings usually chose to work in microeconomic theory and microeconometrics. The use of formal mathematical logic was much deeper in microeconomic theory than in macroeconomic theory, and analogously the most sophisticated econometric methods were more frequently applied to microeconometrics than macroeconometrics. But during the past decade, macroeconomics has absorbed many of the most sophisticated methods of general equilibrium theory, dynamic programming, optimal control theory, calculus of variations, stochastic choice theory, numerical analysis, dynamic systems theory, and game theory. As a result, a large percentage of the best and brightest young mathematical economists and econometricians now choose to work in macroeconomics.

### 4. THE RECONCILIATION

The tension between the field's underlying positive progress and the paradoxical appearances of the field's occasional bifurcations can produce misunderstandings, especially among non-economists. To see why such misunderstandings appear so often, the fundamental objective of the field must be defined.

Many areas of economics suffer from a shortage of experimental data. In other sciences, controlled experiments are used as an integral part of the scientific method. While experimentation is growing in the field of economics and hopefully will continue to grow, the macroeconomy itself is not a controlled experiment. Hence in

many ways data generated by the macroeconomy are not comparable with data generated in a laboratory. It is not surprising that macroeconomic hypotheses are difficult to test in a manner that is satisfactory to all economists. But the primary source of the macroeconomic controversies must be found elsewhere.

Before we can look more deeply at these paradoxes, we need a formal definition of macroeconomics that can be contrasted rigorously with the definition of microeconomics. That distinction no longer can be found in the choice of tools, since microeconomists and macroeconomists use most of the same tools. It is sometimes argued that macroeconomics is “what macroeconomists do,” while macroeconomists are defined in terms of their policy concerns regarding inflation, unemployment, the business cycle, and aggregate economic growth. While this definition does capture the reason for the existence of macroeconomics as a field, the definition is too informal to be useful for our purposes.

My definition will be the following: *microeconomics is the economics of a high-dimensional economy while macroeconomics is the economics of a low dimensional economy*. In practice, the economy in both cases is in the form of a model, and hence both microeconomics and macroeconomics can be relevant, under different degrees of aggregation, to the same actual economy. If the real world were low dimensional, the two fields would be identical. But except for some small island economies, the transition from microeconomics to macroeconomics unavoidably requires aggregation over goods to create such concepts as aggregate investment, consumption, savings, money, and durables. Aggregation over economic agents is needed to produce representative agents within heterogeneous subgroups of agents. There also can be aggregation over time to produce overlapping generations models with consumers having two or more period lifetimes.

The challenge of transition from high dimensional economy to low dimensional model is formidable and presents some of the most difficult problems in all of economics. Yet the needs of government and the high policy relevance of macroeconomics creates constant pressure on macroeconomists to provide easy answers to difficult problems. That’s “the rub”: macroeconomics, through its need for *dimension reduction* of dynamic systems, is inherently the most difficult part of the field of economics and presents the most challenging problems in economic theory, while simultaneously macroeconomics is that field of economics from which simple answers are most often sought, because of the inherent demands of policy as the ultimate driving force of the field and the source of its creation.

## **5. THIS JOURNAL**

The objective of this new journal is to encourage and promote the interests of science in macroeconomics. For that reason, the policies of the journal will tend to parallel those of journals in the physical sciences. The journal will remain open to divergent views and will not become attached to any approach connected with a particular policy view. Similarly, the journal’s scope will include research from the boundary areas of macroeconomics, including allied fields, such as finance, international economics, econometrics, general equilibrium theory, experimental economics, growth models, computational economics, and game theory. For example, the journal’s first two issues include heavy emphasis on finance.

The criterion always will be whether or not publication of the paper is in the interests of the advancement of macroeconomics as a science. But as with journals in the physical sciences, replications will be encouraged and published, whether reflecting positively or negatively upon a paper published in this journal.

### **5.1. The Data Archive**

To permit replication, authors whose papers are accepted for publication in this journal will be required to upload their data to an online archive, unless the data are commercially available under a licensing agreement. The location of the archive and instructions on uploading will be available on the journal’s home page on the web. The URL location of that home page is: <http://wuecon.wustl.edu/~barnett/MD.html>. In addition to uploading any data needed for replication, authors will be required to upload any computer code that is not otherwise available and is needed to replicate the study.

### **5.2. Rapid Turnaround**

In the physical sciences, being first with a published discovery is considered to be of much importance, and hence journals are expected not to delay papers in the refereeing process to an unconscionable degree. To accomplish that objective, some degree of decentralization to the profession is needed, since errors can be overlooked by a rapid refereeing process more easily than by a slow process. Replication is one means of decentralization of error detection in the profession; publication of negative notes is another method. This journal will include the publication both of replications and of negative notes (presuming that the negative notes are justified).

However, those forms of decentralization cannot be as extensive in economics as in the physical sciences, since verification by experimentation is less extensive and much more difficult in economics than in the physical sciences, especially when dimension reduction is involved. Hence the role of referees must remain important.

### **5.3. Book Reviews and Software Reviews**

*Macroeconomic Dynamics* will publish occasional book reviews and computer software reviews. Since this journal's objectives are related to scientific advancement in macroeconomics and not to the full scope of the field of macroeconomics, many purely policy oriented books in the field, including some undergraduate textbooks, cannot be viewed as meriting book reviews here. Similarly only the most innovative new software can be viewed as meriting review in the journal. Hence, book reviews and software reviews will not necessarily appear in every issue, but will appear only when deemed suitable and meriting the space.

### **5.4. Interviews with Leading Macroeconomists**

This journal will occasionally publish the transcripts of interviews with leading macroeconomists. The interviewer typically will not be a member of the journal's editorial board, but rather will be selected with the agreement of the subject. A primary objective of these interviews will be to establish a record of the influences on the thinking of those macroeconomists during their careers, and how their views evolved and developed.

### **5.5. Vintage Articles**

In recent years, it has become common for a few of the best known and most highly cited papers to remain in working paper form, rather than to be published. While such papers are the exception to the rule, virtually every macroeconomist can think of a few such cases. When such exceptions to the rule occur, *Macroeconomic Dynamics* will consider inviting the most important of those papers for publication in a section on Vintage Articles. This section will appear only rarely, and papers for the section will be by invitation only. Uninvited submissions to that section will not be considered.

### **5.6. The Publishing Technology**

This journal, from the start, will be available simultaneously in a paper and an online version. Hence *Macroeconomic Dynamics*, with its data archive, home page, and general scientific bent, will be forward-looking in all ways. We welcome suggestions for other innovations consistent with the promotion of the objectives of the journal.

## **6. ACKNOWLEDGMENTS**

The basic spirit of open scientific inquiry that motivated the founding of this journal has as its predecessor the objectives of the Cambridge University Press monograph series, *International Symposia in Economic Theory and Econometrics*. That series, which for over a decade has published proceedings of symposia on state of the art research in economics, has from its inception been sponsored by the IC<sub>2</sub> Institute at the University of Texas at Austin, and has acquired a reputation of high integrity, unbiasedness, and analytical sophistication. For a list of the volumes in that series, see its home page on the web at <http://wuecon.wustl.edu/~barnett/ISETE.html>. That well established series frequently is viewed as the successor to the eminent Berkeley Symposium in Statistics series. I am the founding editor of the monograph series, *International Symposia in Economic Theory and Econometrics*, as well as of this journal, *Macroeconomic Dynamics*. I wish to take this opportunity to express my gratitude for the support and farsighted vision of the IC<sub>2</sub> Institute and its eminent founder, George Kozmetsky, who made it possible for me to start down this road over a decade ago.

## **7. THE INAUGURAL ISSUES**

The first and second issues of this journal are the inaugural issues, with the second issue being a continuation of the first. The papers in those two issues comprise the proceedings of a conference funded by the IC<sub>2</sub> Institute with cosponsorship funding from Washington University in St. Louis. The topic of the conference was "Computation and Estimation in Finance and Economics." The coeditors of those two issues are William A. Barnett, Lars Peter Hansen, Andrew Lo, and George Tauchen. I would like to take this opportunity to thank those coeditors, the participants at the conference, the IC<sub>2</sub> Institute, and Washington University. I am especially indebted to George Tauchen, who in many ways was the driving force behind the idea and organization of the conference that produced these two inaugural issues for *Macroeconomic Dynamics*.

## **8. THE FUTURE**

The journal's spirit of openness and dedication to research sophistication is reflected in the nature and unusual size of the journal's Board of Editors. At some point in the future, coeditors will be appointed, but initially the editorial roles of this journal will be shared in many ways by the full Board, which has from the start been heavily involved in all stages of the creation, design, and startup of this journal. The Board of Editors, through its breadth and depth, represents the interests of all areas of the field deemed to be in the interests of macroeconomics as a science. This journal is the servant of the field, and the members of the Board of Editors are the representatives of the field in the advancement of the objectives of the journal.

I am privileged to present to you this first issue of *Macroeconomic Dynamics*.

William A. Barnett